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NOTICE OF ALLOWANCE AND FEE(S) DUE

09629 7590 05/07/2004

MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

DO, AN H

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 05/07/2004

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/003,480 | 12/06/2001 | Kouji Suenaga | 053588-5007 | 4362 |

TITLE OF INVENTION: INK JET RECORDING APPARATUS

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1330 | \$300 | \$1630 | 08/09/2004 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

09629 7590 05/07/2004

**MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004**

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

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| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|----------|----------|----------------|
| DO, AN H | 2853 | 347-007000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

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| 09629 | 7590 | 05/07/2004 | EXAMINER | |
| MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004 | | | DO, AN H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2853 | |
| DATE MAILED: 05/07/2004 | | | | |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 71 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 71 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Notice of Allowability

Application No.

10/003,480

Examiner

An H. Do

Applicant(s)

SUENAGA ET AL.

Art Unit

2853

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment/Reconsideration filed on 06 April 2004.
2. ☒ The allowed claim(s) is/are 1-8 and 19-29.
3. ☒ The drawings filed on 06 December 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Stephen D. Meier
Primary Examiner

DETAILED ACTION

The Amendment/Reconsideration filed on 06 April 2004 has been acknowledged.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Baldine Paul on 03 May 2004.

The application has been amended as follows:

-Cancel claims 9-18 without prejudice.

Allowable Subject Matter

2. Claims 1-8 and 19-29 are allowed.

Reasons for Allowance

3. The primary reason for the allowance of claims 1, 7 and 19 is the inclusion of the limitation of a control means controls a supply means so that, when the remaining amount of ink detected by the detecting means is above a lower limit, ink is supplied during non-recording time in an amount corresponding to the amount of ink used. It is these limitations found in each of the claims, as they are claimed in the combination,

that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

4. The primary reason for the allowance of claim 25 is the inclusion of the limitation of when the remaining amount of ink detected by the remaining ink amount detecting means is above the lower limit, ink is supplied to the ink tank in an amount corresponding to the number of printed pixels. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An.H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday.

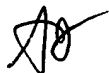
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



**Stephen D. Meier
Primary Examiner**

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AD
May 3, 2004



Stephen D. Meler
Primary Examiner

B1

Claim 1 (Currently Amended): An ink jet recording apparatus comprising:

a recording head including an ink tank for storing ink, the recording head being driven and controlled based on image information so as to jet onto a recording medium ink supplied from the ink tank;

detecting means for detecting ~~the amount~~ an amount of ink remaining in the ink tank;

supply means including a main tank for storing ink, the supply means supplying ink from the main tank to the ink tank when the recording head is disposed at an ink supplying position; and

control means for controlling the supply means so that, when the remaining ~~ink amount~~ amount of ink detected by the detecting means is above a lower limit, ink is supplied during non-recording time in an amount corresponding to the amount of ink used.

↓ Claim 2 (Original): The ink jet recording apparatus of claim 1, wherein the control means estimates, based on the image information, the amount of ink used.

↓ Claim 3 (Original): The ink jet recording apparatus of claim 1, wherein the control means determines whether or not the amount of ink used exceeds a predetermined value, and, when the determination is affirmative, controls the supply means during non-recording time so that ink is supplied.

✓ Claim 4 (Original): The ink jet recording apparatus of claim 3, wherein the
predetermined value corresponds to an amount of ink which can be supplied during
non-recording time without interrupting recording.

Claim 5 (Original): The inkjet recording apparatus of claim 3, wherein the predetermined
value is no more than an upper limit of the ink remaining in the ink tank.

✓ Claim 6 (Original): The inkjet recording apparatus of claim 1, wherein the lower limit is
an amount of ink which can be used for a predetermined amount of printing.

Claim 7 (Currently Amended): An ink jet recording apparatus comprising:
an ink jet recording head including an ink tank to which ink is supplied, the inkjet
recording head printing by jetting the ink from the ink tank in accordance with image
information in a print job;

remaining ink amount detecting means for detecting ~~the amount~~ an amount of ink
remaining in the ink tank at predetermined time intervals and outputting an empty signal
indicating shortage of ink when the ~~ink amount~~ amount of ink is no more than a lower limit;

ink supply means including a main tank for storing ink, the ink supply means supplying
ink from the main tank to the ink tank in response to the empty signal outputted from the
remaining ink amount detecting means; and

control means for controlling the ink supply means such that, when the remaining ink
~~amount~~ amount of ink detected by the remaining ink amount detecting means is above the lower
limit, ink is supplied to the ink tank in an amount corresponding to the amount of ink used.

✓ Claim 8 (Original): The inkjet recording apparatus of claim 7, wherein the control means
controls the ink supply means such that ink is supplied to the ink tank when the print job is not
being printed.

Art Unit: 2862

claims 9-18 canceled.

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✓ Claim 19 (New): An ink jet recording apparatus comprising:

a recording head including an ink tank for storing ink, the recording head being driven and controlled based on image information so as to jet onto a recording medium ink supplied from the ink tank, wherein the image information is a number of printed pixels;

detecting means for detecting an amount of ink remaining in the ink tank;

supply means including a main tank for storing ink, the supply means supplying ink from the main tank to the ink tank when the recording head is disposed at an ink supplying position; and

control means for controlling the supply means so that, when the remaining amount of ink detected by the detecting means is above a lower limit, ink is supplied during non-recording time in an amount corresponding to the number of printed pixels.

↓ Claim 20 (New): The ink jet recording apparatus of claim 19, wherein the control means estimates, based on the image information, the amount of ink used.

↓ Claim 21 (New): The ink jet recording apparatus of claim 19, wherein the control means determines whether or not the amount of ink used exceeds a predetermined value, and, when the determination is affirmative, controls the supply means during non-recording time so that ink is supplied.

↓ Claim 22 (New): The ink jet recording apparatus of claim 21, wherein the predetermined value corresponds to an amount of ink which can be supplied during non-recording time without interrupting recording.

31
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Claim 23 (New): The inkjet recording apparatus of claim 21, wherein the predetermined value is no more than an upper limit of the ink remaining in the ink tank.

Claim 24 (New): The inkjet recording apparatus of claim 19, wherein the lower limit is an amount of ink which can be used for a predetermined amount of printing.

Claim 25 (New): An ink jet recording apparatus comprising:
an ink jet recording head including an ink tank to which ink is supplied, the inkjet recording head printing by jetting the ink from the ink tank in accordance with image information in a print job, wherein the image information is a number of printed pixels;
remaining ink amount detecting means for detecting an amount of ink remaining in the ink tank at predetermined time intervals and outputting an empty signal indicating shortage of ink when the amount of ink is no more than a lower limit;

ink supply means including a main tank for storing ink, the ink supply means supplying ink from the main tank to the ink tank in response to the empty signal outputted from the remaining ink amount detecting means; and

control means for controlling the ink supply means such that, when the remaining amount of ink detected by the remaining ink amount detecting means is above the lower limit, ink is supplied to the ink tank in an amount corresponding to the number of printed pixels.

Art Unit: 2862

B1
art

Claim 26 (New): The inkjet recording apparatus of claim 25, wherein the control means controls the ink supply means such that ink is supplied to the ink tank when the print job is not being printed.

Claim 27 (New): The ink jet recording apparatus of claim 19, wherein the control means determines whether the number of printed pixels exceeds a predetermined number of pixels, and, when the determination is affirmative, controls the supply means during non-recording time so that ink is supplied.

Claim 28 (New): The inkjet recording apparatus of claim 19, wherein the control means calculates a percentage of an ink amount corresponding to the number of printed pixels and controls the supply means to supply the percentage of the ink amount.

Claim 29 (New): The image recording apparatus of claim 28, wherein the percentage of the ink amount is in a range of 60 percent to 95 percent of the ink amount corresponding to the number of printed pixels.